

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1. (Original) A method for polling and scheduling in a multiuser network that includes a plurality of bandwidth efficient modems, with at least one modem designated as a polling point coordinator access point (AP) element, the method comprising:

indicating the beginning of a contention-free period;
simultaneously transmitting on a single channel a first set of polling signals, where each polling signal corresponds to a particular terminal included in a first set of terminals included in the network;
receiving two or more simultaneous responses from the first set of polled terminals;
recovering each of those two or more simultaneous responses using co-channel demodulation capabilities of the AP element; and
transmitting clear-to-send messages to any terminals requesting to send data, as indicated by received responses.

Claim 2. (Original) The method of claim 1 wherein the recovering is followed by:
simultaneously transmitting acknowledgement signals to responding terminals.

Claim 3. (Original) The method of claim 1 wherein the recovering is followed by:
simultaneously transmitting a next set of polling signals to a next set of two or more terminals;
receiving two or more simultaneous responses from the next set of polled terminals; and
recovering each of those two or more simultaneous responses using co-channel demodulation capabilities of the AP element.

Claim 4. (Original) The method of claim 3 further comprising:
repeating the steps of simultaneously transmitting a next set, receiving two or more simultaneous responses from the next set of polled terminals, and recovering each

of those two or more simultaneous responses using co-channel demodulation capabilities of the AP element until the end of the contention free period.

Claim 5. (Original) The method of claim 3 wherein simultaneously transmitting a next set of polling signals is preceded by simultaneously transmitting acknowledgement signals to responding terminals.

Claim 6. (Original) The method of claim 1 wherein indicating the beginning of a contention-free period includes transmitting a beacon signal.

Claim 7. (Original) The method of claim 1 wherein the polling signals are generated by the AP element using an optimal phase relationship to facilitate signal recovery.

Claim 8. (Original) The method of claim 1 wherein the responses include at least one of an acknowledgement signal and a request-to-send signal.

Claim 9. (Original) The method of claim 1 wherein transmitting clear-to-send messages to any terminals requesting to send data enables those terminals to simultaneously transmit messages to other terminals in the network after a guard interval.

Claim 10. (Original) The method of claim 1 further comprising:
transmitting a message to signal the end of the contention free period.

Claim 11. (Original) The method of claim 1 further comprising:
monitoring the channel;
transmitting clear-to-send messages to queued terminals when currently transmitting terminals complete data transmission; and
in response to no terminals being queued, simultaneously transmitting on a single channel a next set of polling signals.

Claim 12. (Original) A method for polling and scheduling in a multiuser network that includes a plurality of bandwidth efficient modems configured to carry out a distributed

coordination function (DCF) for providing best-effort delivery of asynchronous packet data, the method comprising:

two or more terminals simultaneously transmitting on a single channel requests-to-send (RTS) messages to a first set of destination modems;
simultaneously receiving clear-to-send (CTS) messages from the first set of destination modems at each of the requesting-to-send modems;
recovering each corresponding CTS message using co-channel demodulation capabilities of the corresponding requesting modem;
each requesting modem simultaneously transmitting its respective data on to the network;
and
each corresponding destination modem recovering the corresponding data using its co-channel demodulation capabilities.

Claim 13. (Original) The method of claim 12 further comprising the preliminary steps:
each modem detecting that one or more of the other modems included in the network are bandwidth efficient and therefore capable of an aggressive access protocol that exploits co-channel demodulation capabilities; and
switching from a legacy protocol mode to the bandwidth efficient aggressive access protocol mode for at least one pair of communicating modems included in the network.

Claim 14. (Original) The method of claim 12 comprising:
each modem adaptively learning modes of operation which each particular modem in the network is capable; and
storing the learned modes operation.

Claim 15. (Original) The method of claim 14 wherein the learned modes of operation include a legacy protocol mode and a bandwidth efficient aggressive access protocol mode that exploits co-channel demodulation capabilities.

Claim 16. (Original) The method of claim 12 further comprising:

repeating the steps of simultaneously transmitting requests-to-send (RTS) messages, simultaneously receiving clear-to-send (CTS) messages, recovering each corresponding CTS message, simultaneously transmitting respective data on to the network, and recovering the corresponding data for one or more next sets of destination modems.

Claims 17-24. (Canceled)